

CONTENTS

Preface.....	ix
Contributing Authors.....	xi
V.F. HENDRICKS, S.A. PEDERSEN AND K.F. JØRGENSEN / Introduction.....	1
Original Abstracts	9
PART 1. THE PHILOSOPHY AND RECENT HISTORY OF PROBABILITY THEORY AND STATISTICS	
N.H. BINGHAM / Probability and Statistics: Some Thoughts at the Turn of the Millennium	15
1. Introduction	15
2. Early History	15
3. The Rise of Measure Theory: Prelude to the <i>Grundbegriffe</i>	16
4. The Triumph of Measure Theory: The Impact of the <i>Grundbegriffe</i>	17
5. The General Theory of Processes and Stochastic Integration	19
6. The Evolution of Statistics in the Twentieth Century: Classical Theories.....	21
7. The Evolution of Statistics in the Twentieth Century: Other Approaches	24
8. The Development of Applied Probability in the Twentieth Century	27
9. The Impact of Physics	31
10. The Impact of the Computer.....	34
11. The Impact of Finance.....	36
12. Kolmogorov's Later Work and Algorithmic Information Theory	39
13. Critique of the Shafer-Vovk Approach via Game Theory.....	41

14. Postscript	43
References	44
VOLODYA VOVK / Kolmogorov's Complexity Conception of Probability	51
1. Introduction	51
2. Kolmogorov's Frequency Interpretation	53
3. Kolmogorov Complexity as Tool for the Frequency Interpretation	56
4. Kolmogorov's Complexity Conception	58
5. Algorithmic Theory of Randomness	61
6. Conclusion	64
Notes	67
References	67
EBERHARD KNOBLOCH / Emile Borel's View of Probability Theory	71
1. Probability Theory and Borel's Philosophy of Mathematics	72
2. Foundations of Probability Theory and Objections Against It	76
3. Borel, von Mises, and Keynes	81
4. Borel and Reichenbach	87
5. Scientific Determinism versus Probabilistic Indeterminism	90
References	93
BERNA EDEN KILINÇ / The Reception of John Venn's Philo- sophy of Probability	97
1. Venn's Analysis of the Reference Class Problem	98
2. Venn's Reception	105
3. Reference Classes of the Classical Probabilists	111
4. Conclusion	114
Notes	116
Archival Sources	118
References	118

PART 2. CONTEMPORARY ISSUES IN PROBABILITY
THEORY AND STATISTICS

J.B. PARIS / On the Distribution of Probability Functions in the Natural World	125
1. Introduction	125
2. Univariate Case	127
3. The Univariate Model	130
4. Properties of J	133
5. Egon Pearson's Investigations	135
6. The Multivariate Model	137
7. Conclusions	142
Acknowledgements	143
Postscript	143
Notes	143
References	144
GLENN SHAFER / Nature's Possibilities and Expectations	147
1. Dynamic Regularity in Nature	148
2. Nature as an Idealization	151
3. Towards an Intellectual History of Nature as Ideal Witness	154
4. The Inadequacy of Stochastic Processes	156
5. A Framework for Causal Debate	157
6. Determinism and Free Will Within Nature's Event Tree	161
Notes	163
References	164
T. SEIDENFELD / Remarks on the Theory of Conditional Probability: Some Issues of Finite versus Countable Additivity	167
1. Introduction	167
2. Conditional Probability $P(\cdot A)$ when $P(A) = 0$	170
3. Some Finitely Additive Conditional Probability	174

Notes.....	177
References.....	177
Index.....	179